

## Listing of Claims

The following listing of claims is intended to supercede all previously filed listings of claims. Changes are shown with deletions in ~~strike through~~ and additions underlined.

Kindly enter the following amendments to the claims:

**Claim 1 (Cancelled).**

**Claim 2 (Previously Presented).** A method for storing and updating information in a network having  $n$  hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within an  $n$ th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said related set of keys includes each key associated with each non-leaf node on said corresponding path from said leaf node to said root node wherein said corresponding set of keys associated with each non-leaf node includes  $2^m - 1$  keys where  $m$  is the maximum number of child nodes that may be associated with each non-leaf node.

**Claim 3 (Previously Presented).** A method for storing and updating information in a network having  $n$  hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within an  $n$ th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said corresponding set of keys associated with each non-leaf node includes  $2^m - 2$  keys where  $m$  is the maximum number of child nodes that may be associated with each non-leaf node.

**Claim 4 (Previously Presented).** A method for storing and updating information in a network having  $n$  hierarchical levels, said method comprising the steps of:

defining a root node positioned in a first of said levels, said root node having no parent node and at least one child node;

defining at least two leaf nodes positioned within an  $n$ th of said hierarchical levels, each of said leaf nodes having a parent node and no child node;

defining a corresponding path between each of said at least two leaf nodes and said root node;

associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node; and

providing each leaf node with a related set of keys, wherein said related set of keys provided to each leaf node includes  $(n-1) \cdot (2^m - 1)$  keys where  $m$  is the maximum number of child nodes that may be associated with each non-leaf node.

**Claim 5 (Previously Presented).** The method of claim 2 wherein each non-leaf node is associated with more than two child nodes.

**Claim 6 (Previously Presented).** The method of claim 2 wherein each non-leaf node is associated with the same number of child nodes.

**Claim 7 (Previously Presented).** The method of claim 2 further comprising the step of defining an internal node positioned on said corresponding path between said root node and a first of said leaf nodes, said internal node being associated with a hierarchical level between said first level and said  $n$ th level.

**Claim 8 (Previously Presented).** The method of claim 2 further comprising the step of identifying a specific one of said leaf nodes as a compromised leaf node.

**Claim 9 (Previously Presented).** The method of claim 8 further comprising the step of removing at least a portion of said corresponding path associated with said compromised leaf node.

**Claim 10 (Original).** The method of claim 8 comprising the step of marking a key in said set of keys related to said compromised leaf node as a compromised key.

**Claim 11 (Original).** The method of claim 10 further comprising the step of sending a message from said root node to a non-compromised leaf node using a key that has not been marked as a compromised key.

**Claim 12 (Previously Presented).** The method of claim 2 further comprising the step of identifying each of one or more specific leaf nodes as a compromised leaf node.

**Claim 13 (Original).** The method of claim 12 further comprising the step of removing at least a portion of said path between each of said one or more compromised leaf nodes and said root node.

**Claim 14 (Original).** The method of claim 12 further comprising the step of marking a key in said set of keys related to each of said one or more compromised leaf nodes as a compromised key.

**Claim 15 (Original).** The method of claim 14 further comprising the step of sending a message from said root node to a non-compromised leaf node using a key that has not been marked as a compromised key.

**Claims 16-20 (Cancelled).**

**Claim 21 (Previously Presented).** The method of claim 3 wherein each non-leaf node is associated with more than two child nodes.

**Claim 22 (Previously Presented).** The method of claim 3 wherein each non-leaf node is associated with the same number of child nodes.

**Claim 23 (Previously Presented).** The method of claim 3 further comprising the step of defining an internal node positioned on said corresponding path between said root node and a first of said leaf nodes, said internal node being associated with a hierarchal level between said first level and said  $n$ th level.

**Claim 24 (Cancelled).**

**Claim 25 (Cancelled).**

**Claim 26 (Previously Presented).** The method of claim 4 wherein each non-leaf node is associated with more than two child nodes.

**Claim 27 (Cancelled).**

**Claim 28 (Previously Presented).** The method of claim 4 further comprising the step of defining an internal node positioned on said corresponding path between said root node and a first of said leaf nodes, said internal node being associated with a hierarchal level between said first level and said  $n$ th level.

**Claim 29-30 (Cancelled).**